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DINSMORE & SHOHL LLP ONE DAYTON CENTRE, ONE SOUTH MAIN STREET SUITE 1300 DAYTON, OH 45402-2023			EXAMINER ZHENG, LOIS L	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/625,915	Applicant(s) PHELPS ET AL.	
	Examiner Lois Zheng	Art Unit 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2007.
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12, 13, 37-49, 163 and 165-182 is/are pending in the application.
 4a) Of the above claim(s) 41, 42, 47 and 48 is/are withdrawn from consideration.
 5) ☐ Claim(s) 165-182 is/are allowed.
 6) ☒ Claim(s) 1-9, 12, 13, 37-40, 43-46, 49 and 163 is/are rejected.
 7) ☐ Claim(s) 10 is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/17/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

1. Claims 1 and 163 are amended in view of applicant's amendment filed 26 June 2007. Claims 11, 14-36, 50-162 and 164 are canceled. Claims 41-42 remain withdrawn from consideration.

Regarding the status of claims 47-48, they are withdrawn from consideration since they are directed to non-elected species. Please see original Requirement for Restriction/Election mailed 30 September 2005, applicant's Response to Restriction/Election filed 27 October 2005 and the Non-Final Office Action mailed 11 January 2006.

Regarding the status of claim 49, after reviewing the previous record, the examiner discovered that claim 49 was mistakenly withdrawn from consideration with claims 47-48. Claim 49 was not subjected to the species election made in Requirement for Restriction/Election mailed 30 September 2005. Therefore, claim 49 should be examined.

Therefore, claims 1-10, 12-13, 37-40, 43-46, 49, 163 and 165-182 are currently under examination.

Since this is the first time claim 49 is being examined, this office action is made **Non-Final**.

Status of Previous Rejections

2. The rejection of claims 1, 4-5, 8-9, 12-13, 37-40, 43-45 and 163 under 35 U.S.C. 102(b) as being anticipated by DePue et al. US 5,322,560(DePue) is withdrawn in view of applicant's argument filed 26 June 2007.
3. The rejection of claims 2-3 and 6 under 35 U.S.C. 103(a) as being unpatentable over DePue is withdrawn in view of applicant's argument filed 26 June 2007.
4. The rejection of claim 46 under 35 U.S.C. 103(a) as being unpatentable over DePue in view of Dattilo US 6,291,018 B1(Dattilo) is withdrawn in view of applicant's argument filed 26 June 2007.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 4-5, 8-9, 12-13, 37-40 and 163 are rejected under 35 U.S.C. 102(b) as being anticipated by PCT publication WO 98/48075, whose English equivalent is Tadokoro et al. US 6,200,672 B1(Tadokoro).

Tadokoro teaches an aqueous metal surface treatment fluid comprising a rare earth element complex of an organic compound and a rare earth element such as tetravalent cerium(col. 4 lines 52-54, col. 5 lines 6-9) and a matrix providing adhesive power to physically hold the complex to metal surfaces(col. 3 lines 12-20). Tadokoro further teaches the rare earth metal complex further comprises an inorganic compounds such as phosphates, nitrates and sulfates(col. 5 lines 27-31). The matrix as taught by

Tadoko comprises oxyacid anions such as phosphate, tungstate, vanadate anions, wherein the rare earth metal elements and the oxyacid anions form oxyacid compounds(col. 9 lines 28-33).

Regarding claims 1 and 12-13, the tetravalent cerium complex of Tadokoro reads on the claimed rare earth element complex with the rare earth element in tetravalent oxidation state. The phosphate, sulfate and nitrate inorganic compound in the rare earth metal complex of Tadokoro read on the claimed inorganic valence stabilizer.

With respect to the claim feature of a solid conversion coating formed on a metal substrate, the coating layer formed on the metal substrate as a result of applying the coating composition of Tadokoro is a solid conversion coating layer as claimed.

Regarding claim 163, Tadokoro further teaches that the solubility of the rare earth metal complex is no greater than 0.01 mol/l(col. 5 lines 36-38). Since about 25°C reads on room temperature and 760Torr is atmospheric pressure, the examiner asserts that the solubility as taught by Tadokoro reads on the limitation of the rare earth/valence stabilizer complex being sparingly soluble as claimed.

Regarding claim 4, the layer matrix as taught by Tadokoro reads on the electrostatic barrier layer around the rare earth/valence stabilizer complex as claimed.

Regarding claim 5, since Tadokoro teaches the claimed rare earth/valence stabilizer complex, the function of the rare earth/valence stabilizer complex as an ion exchange agent towards corrosive ions is inherent.

Regarding claim 8, Tadokoro further teaches the coated metal surface can be further covered by an over coat layer(col. 10 lines 35-38). Since Tadokoro teaches the

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same rare earth/valence stabilizer complex as claimed in its coating fluid, the coating solution of Tadokoro inherently has the same adhesion enhancing morphology as claimed.

Regarding claim 9, since the inorganic compound in the rare earth metal complex of Tadokoro reads on the claimed rare earth/valence stabilizer, the examiner asserts that the rare earth/valence stabilizer as taught by Tadokoro inherently has a central cavity containing cerium as claimed. In addition, since specifics of the additional ions are not recited in the claim and there are always impurity ions randomly distributed in the coating solution including the cavity of the rare earth metal complex, any ions, such as impurities, in the cavity of the rare earth metal complex, read on the claimed additional ion.

Regarding claims 37-40, Tadokoro teaches the presence of cerium ions which read on the claimed cationic solubility control agent. Tadokoro further teaches the presence of calcium, zinc, lanthanum, hydrogen, zirconium and titanium ions(col. 10 lines 9-18) which also read on the claimed cationic solubility control agent.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2-3 and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tadokoro.

The teachings of Tadokoro are discussed in paragraph 6 above.

Regarding claims 2-3, Tadokoro further teaches that the solubility of the rare earth metal complex is no greater than 0.01 mol/l(col. 5 lines 36-38). Since about 25°C reads on room temperature and 760Torr is atmospheric pressure, the examiner asserts that the solubility of no greater than 0.01 mol/l as taught by Tadokoro overlaps the solubility of about 5×10^{-1} and about 1×10^{-5} mol/l as recited in instant claim 2 and the solubility of about 5×10^{-2} and about 5×10^{-5} mol/l as recited in instant claim 3. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed solubility from the solubility of Tadokoro would have been obvious to one of ordinary skill in the art since Tadokoro teaches the same utilities in its disclosed solubility range.

Regarding claims 6-7, Tadokoro further teaches that the coating thickness is 0.1 microns to 10 microns(col. 10 lines 27-34) which overlaps the claimed about 25-10,000 nanometers as recited in instant claim 6 and the claimed about 100-500 nanometers as recited in instant claim 7. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed coating thickness from the coating thickness of Tadokoro would have been obvious to one of ordinary skill in the art since Tadokoro teaches the same utilities in its disclosed coating thickness range.

9. Claims 43-46 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tadokoro in view of Dattilo US 6,291,018 B1(Dattilo).

The teachings of Tadokoro are discussed in paragraphs 6 and 8 above. However, Tadokoro does not explicitly teach an agent to improve color-fastness as claimed.

Dattilo teaches a metal surface treatment coating composition comprising color pigments such as carbon black and phthalocyanines(col. 5 lines 34-41).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated color pigments such as carbon black and phthalocyanines as taught by Dattilo into the coating composition of Tadokoro in order to provide decorative effect to the coating formed as taught by Dattilo(col. 5 lines 34-38).

Therefore, the coating composition of Tadokoro in view of Dattilo is colored as recited in instant claim 43 and also comprises an agent that improves color-fastness as recited in instant claim 44. Color pigments such as carbon black and phthalocyanines as taught by Tadokoro in view of Dattilo also read on the claimed active UV blocker as recited in instant claims 45-46 and the inorganic pigments as recited in claim 49.

Allowable Subject Matter

10. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claims 165-182 are allowed.

12. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not teach or fairly suggest, either alone or in combination, the claimed solid conversion coating comprising the claimed rare

earth/valence stabilizer complex, at least one rare earth element is in tetravalent oxidation state and the rare earth/valence stabilizer complex has a central cavity containing a cerium, praseodymium, or terbium ion and an additional ion as listed in instant claim 165.

Response to Arguments

13. Applicant's arguments filed 26 June 2007 have been considered but are not persuasive.

Applicant argues that Tadokoro teaches a complex between a rare earth element and an organic compound and the inorganic compound is only added as a ligand.

Tadokoro teaches that the rare earth metal complex also contains an inorganic compound as ligand(col. 5 lines 24-27). It is also well known that a ligand donates or shares electron with a central atom, usually a metal, via covalent bonds for the purpose of protection and stabilization. Therefore, the inorganic ligand as taught by Tadokoro is part of the rare earth metal complex and functions as a valence stabilizer as claimed.

Applicant also argues that the tetravalent cerium present in the starting solution of Tadokoro does not mean it is present in the final rare earth metal complex because tetravalent cerium can easily react with other compounds in the solution to form trivalent cerium compounds. In addition, Tadokoro teaches that the valency of the rare earth metal does not matter.

The examiner agrees that Tadokoro teaches that the valency of the rare earth metal complex is not particularly important. However, Tadokoro also specifically teaches that tetravalent cerium is preferred, and the tetravalent cerium is placed in the context of

the rare earth metal complex formed(col. 4 line 65 – col. 5 line 9). Based on this teaching, the examiner believes that the cerium in the rare earth metal complex of Tadokoro is in the claimed tetravalent oxidative state.

Applicant further argues that the organic species in Tadokoro functions differently from that of the claimed invention since organic species “forms a complex with the dissolved metal component of the metal sheet and precipitates”.

The examiner does not find applicant's argument persuasive since the claims being examined are directed to an inorganic valence stabilizer, not an organic valence stabilizer. It is irrelevant how the organic species of Tadokoro functions or whether it acts the same as the instant invention.

Applicant further argues that Tadokoro is a non-enabling reference and supports this argument with a declaration under 37 C.F.R. 1.132 demonstrating that the experiments of Tadokoro either do not produce cerium VI or result in high solubility.

The declaration under 37 CFR 1.132 filed 26 June 2007 is insufficient to overcome the rejections based upon Tadokoro because the declaration does not provide sufficient evidence that the Tadokoro reference is not enabling. Tadokoro teaches that the solubility of its rare earth metal complex is no greater than 0.01mol/l when pH is 6-7(col. 5 lines 37-39). The results of Tadokoro's experiments are shown in Table 1. Applicant's repeat of Tadokoro's experiments in the declaration does not mention the solubility in of the rare earth metal complex with the exception of the dextrose solution, which shows high solubility. Therefore, the examiner does not think that Applicant has reproduced Tadokoro's experiments. In addition, the experiments

are merely embodiments of Tadokoro's invention. They do not limit the scope of Tadokoro's invention. Therefore, the examiner maintains that Tadokoro teaches the claimed invention within its scope.

Applicant further argues that Tadokoro does not teach a conversion coating because Tadokoro teaches that the layer matrix in its coating "physically holds the rare earth metal complex in the layer on the metal surface and attaches to the metal sheet".

The examiner acknowledges the adhesive capability of the layer matrix in the coating of Tadokoro. However, the examiner maintains her position that the good adhesive capability of the layer matrix does not directly leads to no chemical reaction occurred at the metal surface. In fact, Tadokoro teaches the formation of an oxyacid salt layer-type or an oxide layer-type passive layer due to the presence of oxyacid compound of the rare earth metal elements in the matrix(col. 3 lines 49-53, col. 9 lines 28-44). Therefore, the coating formed by applying the coating composition of Tadokoro is a chemical conversion coating as claimed.

Applicant further argues that the support for impurities in the rare earth metal complex in the central cavity of the rare earth metal complex is not provided in the previous Office Action.

The examiner respectfully disagrees. Any coating solution would contain a certain level of impurities and the impurities are randomly distributed. Therefore, the impurities in the coating solutions of Tadokoro would also be randomly distributed through out the coating solution including the central cavity of the rare earth metal

complex. Any impurity in the central cavity of the rare earth metal complex would read on the claimed additional ion.

Applicant further argues that Tadokoro does not teach the claimed solubility control agent.

The examiner does not find applicant's argument persuasive since Tadokoro teaches the claimed cerium, calcium, zinc, lanthanum, hydrogen, zirconium and titanium ions present in its coating composition as additives. Since they are the same ions as claimed ions for solubility control agent, they inherently functions as a solubility control agent as well.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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